Ultra-Fast Soft Recovery Diode Module

Description

Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems. These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.

Features

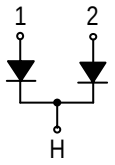
- ☞ Repetitive Reverse Voltage : V_{RRM} = 400V
- ☞ Low Forward Voltage Drop : V_F(typ.) = 1.05V
- ☞ Average Forward Current : I_F(AV.) = 150A @ Tc = 100°C
- ☞ Ultra-Fast Reverse Recovery Time : t_{rr}(typ.) = 100 ns
- ☞ Extensive Characterization of Recovery Parameters
- ☞ Reduced EMI and RFI
- ☞ Non Isolation Type Package and 175°C Operating Junction Temperature
- ☞ Dual FRD Construction

Applications

High Speed & High Power Converters, Welders, Various Switching and Telecommunication Power Supply.

Equivalent Circuit and Package

Equivalent Circuit



(Common Heat Sink)

Package : 3DM2 -NI Series

Non Isolation Type

Please see the package Out line information

Ordering Information

Device Name	DH2F150N4S
Optional Information	Common Heat Sink Non Isolation Type

Absolute Maximum Ratings @ T_j=25°C(Per Leg)

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		400	V
$V_{R(DC)}$	Reverse DC Voltage		320	V
$I_{F(AV)}$	Average Forward Current @ Tc = 25°C @ Tc = 100°C	Resistive Load	300 150	A A
I_{FSM}	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	2750	A
I^2t	I^2t for Fusing	Value for One Cycle Current, t_w = 8.3ms, T_j = 25°C Start	37.5* 10^3	A^2s
T_j	Junction Temperature		-40 ~ 175	°C
T_{stg}	Storage Temperature		-40 ~ 150	°C
-	Mounting Torque(M6)		4.0	N.m
-	Terminal Torque(M6)	Typical Including Screws	3.0	N.m
-	Weight		95	g

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Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance(Non Isolation Type)	Junction to Case	-	-	0.23	°C/W

Electrical Characteristics @ T_j=25°C (unless otherwise specified)

Symbol	Parameter	Conditions		Values			Unit
				Min.	Typ.	Max.	
V_R	Cathode Anode Breakdown Voltage	I_R = 100uA		400	-	-	V
V_{FM}	Maximum Forward Voltage	I_{FM} = 150A, T_c = 25°C		-	1.05	1.3	V
		I_{FM} = 150A, T_c =100°C		-	0.95	1.1	V
I_{RRM}	Repetitive Peak Reverse Current	T_C = 100°C, V_{RRM} applied		-	-	1.0	mA
T_{rr}	Reverse Recovery Time	I_{FM} = 150A, V_R = 200V di/dt=-100A/us	T_c = 25°C	-	100	130	ns
			T_c = 100°C	-	130	-	ns

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Performance Curves

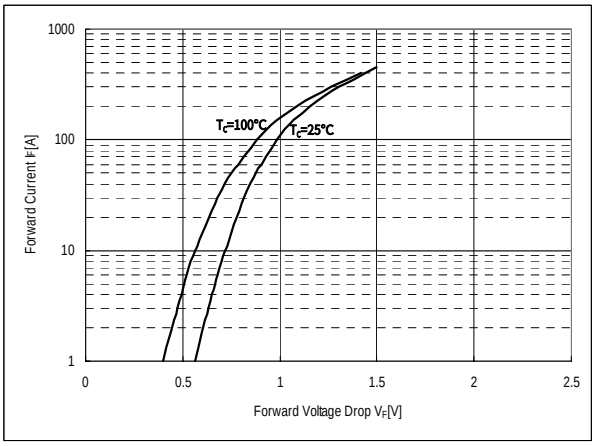

Fig. 1 : Typical Forward Voltage Drop
vs. Instantaneous Forward Current

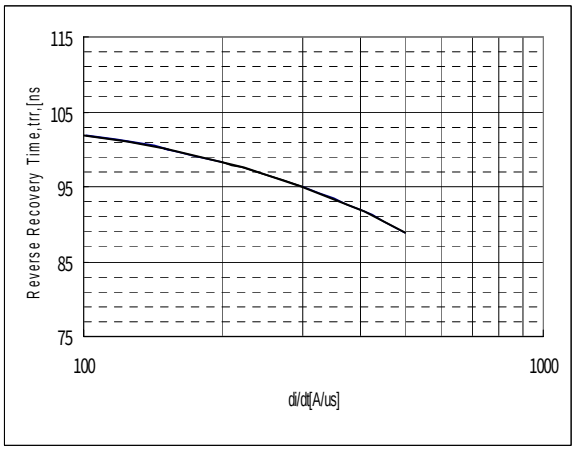

Fig. 2 : Typical Reverse Recovery Time
vs. -di/dt

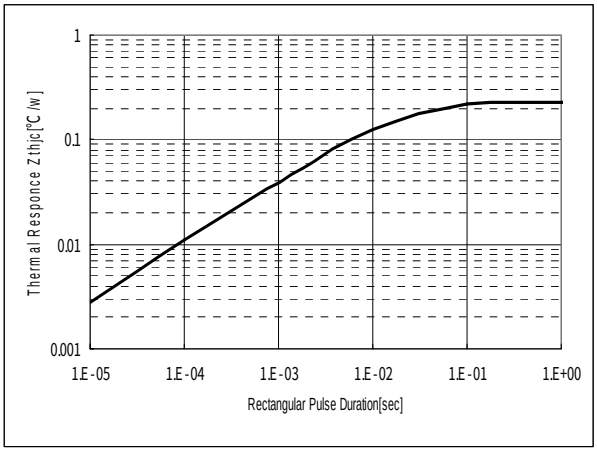

Fig. 3 : Transient Thermal Impedance(Z_{thjc})
Characteristics

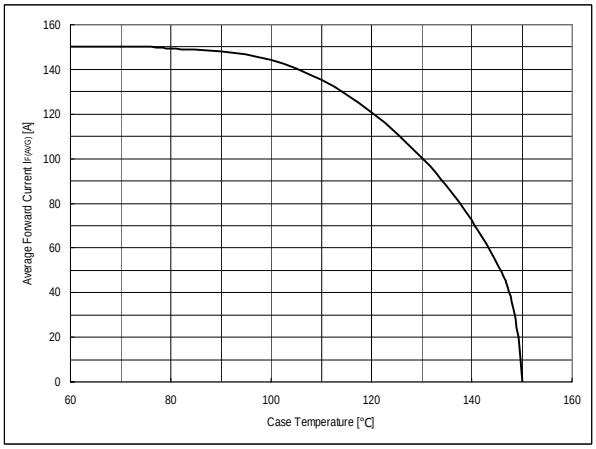

Fig. 4 : Forward Current Derating Curve

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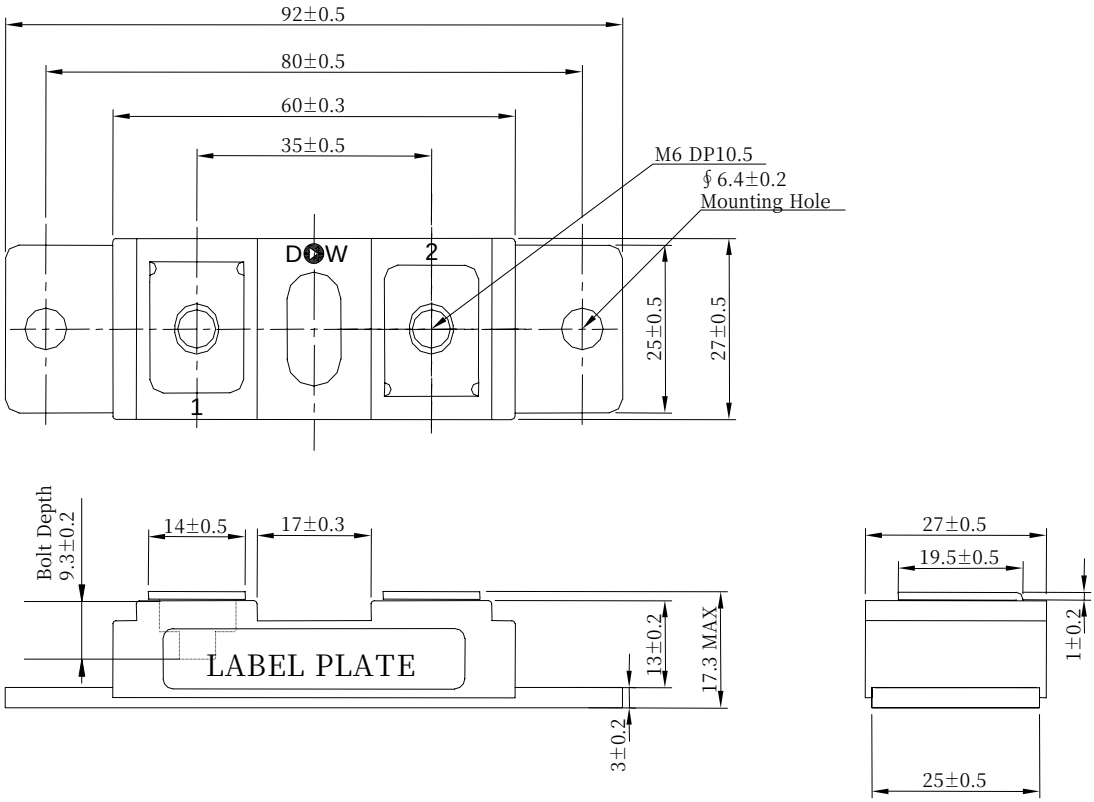
Package Out Line Information

3DM2-NI Series

Dimensions in mm



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